**Course: 7th Grade Math CCSS Standard Number(s): 7.EE.3 Day: 23**

**Unit # and Title: Unit 1 – Rational Number Operations Block(s)/Period(s): 1 2 3 4 5 6**

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| **Unit Essential Question(s):** | **How do I solve multi-step real life and mathematical problems posed with positive and negative rational numbers in any form?** | | |
| **Learning Target(s)**  **“I can statements”** | I can evaluate numerical expressions using the order of operations. | | |
| **Essential Vocabulary** | **Expression (written and numerical)**  **Order of Operations - PEMDAS**  **Exponent**  **Parenthesis**  **Grouping** | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| **Glencoe textbook Lesson 1-3**  **Holt McDougal website Lesson 1-1** | | **Glencoe textbook Lesson 1-3**  **Holt McDougal website Lesson 1-1** |
| **8 Mathematical Practices:** | | | |
| x 1. Make sense of problems and persevere in solving them.  x 2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  x 4. Model with mathematics. | | x 5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** | **Holt Lesson 2-6 Problem of the Day (Slide 3)**  **Martin recorded how much a bean plant grew each week. The first week the plant grew 4/7 of an inch, 7/8 of an inch the second week, and 7/9 of an inch the third week. During which week did the plant grow the least? Answer: Answer: Week 1** | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | **Me: Introduce PEMDAS (Parenthesis, Exponent, Multiply, Divide, Add, Subtract)**  **Teach examples 1A – 1C (Slides 8-10) on Holt McDougal website (Lesson 1-1)**  **Example 1A: Simplify the expression. Use the order of operations to justify your answer. 3 + 15 ÷ 5**  **Example 1B: Simplify the expression. Use the order of operations to justify your answer.**  **44 – 14 ÷ 2 · 4 + 6**  **Example 1C: Simplify the expression. Use the order of operations to justify your answer.**  **3 + 23 · 5**  **We: Students will complete the Check It Out! Examples (Slides 11-13) on Holt McDougal website (Lesson 1-1)**  **Example 1A: Simplify the expression. Use the order of operations to justify your answer.**  **2 + 24 ÷ 6**  **Example 1B: Simplify the expression. Use the order of operations to justify your answer.**  **28 – 21 ÷ 3 · 4 + 5**  **Example 1C: Simplify the expression. Use the order of operations to justify your answer.**  **2 + 32 · 4**  **Few: Students will work in pairs and complete Holt McDougal Lesson 1-1 Reading Strategies Activity**  [**reading\_strategies.doc**](file:///F:\reading_strategies.doc)  **Reading Strategies Answer Key**  1. divide 􀁯 multiply 􀁯 subtract 􀁯 add  2. 7  3. parentheses 􀁯 multiply 􀁯 add 􀁯  exponents 􀁯 subtract  4. 15  5. parentheses 􀁯 divide 􀁯 add 􀁯  exponent 􀁯 subtract  6. 45  Algebraic Reasoning  Reading Strategies: Use a Flowchart  When you read a book, you read from left to right. When you evaluate an expression, you cannot always work from left to right. You must follow a special rule called the order of operations. Use the flowchart below to help you follow the order of operations.  **Example** 25  **(4 • 5)**  22 parentheses first  Add or subtract from left  to right.  Perform operations within grouping symbols.  Multiply or  divide from  left to right.  Evaluate exponents.  25  **20**  22 Evaluate power next.  25  **20**  **4** Multiply and divide (left to right).  **25**  **5** Add and subtract (left to right).  **20**  Answer each question.  1. In what order will you perform the operations in the following expression: 30  18  2 • 3  4?    2. Simplify this expression: 30  18  2 • 3  4.  3. Make a flow chart for the order of operations in this expression: 33  (2  5 • 2).    4. Simplify this expression: 33 – (2 + 5 • 2).  5. Make a flow chart for the order of operations in this expression: (3 + 12 ÷ 3)2 – 4.    6. Simplify this expression: (3  12  3)2  4.  **You: Glencoe Teacher Resource Lesson 1-3 page 13 Word Problems**  [**Glencoe 1-3 Word Problems.docx**](file:///F:\Glencoe%201-3%20Word%20Problems.docx)  [**Glencoe 1-3 Word Problems-Answer Key.docx**](file:///F:\Glencoe%201-3%20Word%20Problems-Answer%20Key.docx)  **Practice: Word Problems**  ***Order of Operations***  NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE \_\_\_\_\_\_\_\_\_\_\_\_\_\_ PERIOD \_\_\_\_\_  **Lesson 1–3**  **1. FOOTBALL** The middle school team  scored three field goals worth three  points each and two touchdowns worth  six points each, including extra points.  Write a numerical expression to find  the team’s score. Then evaluate the  expression.  **2. BOOKS** Juan goes to the schoolbook fair  where paperback books are $1.50 and  hardback books are $3.00. Juan buys 5  paperback and 2 hardback books. Write  a numerical expression to find how  much Juan paid for the books. Then  evaluate the expression.  **3. GEOMETRY** The perimeter of a hexagon  is found by adding the lengths of all six  sides of the hexagon. For the hexagon  below write a numerical expression to  find the perimeter. Then evaluate the  expression.  8  5 5  5 5    8  **4. MONEY** Aisha bought school supplies  consisting of 6 spiral notebooks costing  $0.39 each, 2 packages of pencils at  $0.79 each, and a 3-ring binder for  $1.99. Write an expression to find the  total amount Aisha spent on school  supplies. Then evaluate the expression.  **5. REASONING** Use the order of operations  and the digits 2, 4, 6, and 8 to create an  expression with a value of 2.  **6. NUMBER SENSE** Without parentheses,  the expression 8 + 30 ÷ 2 + 4 equals  27. Place parentheses in the expression  so that it equals 13; then 23.  **7. MONEY** Tyrone bought 5 postcards at  $0.55 each and a set of postcards for  $1.20. Write an expression to find the  total amount Tyrone spent on  postcards. Then evaluate the  expression.  **8. DINING** Mr. Firewalks took his family  out to eat. They ordered 3 meals costing  $8.99 each, 2 sodas at $1.50 each, and 1  glass of tea for $1.25. Write an  expression to find the total amount the  Firewalks family spent on dinner  before taxes and tip. Then evaluate the | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Holt McDougal Lesson 1-1 Problem of the Day (Slide 3)**  **Classify each statement as true or false. If the statement is false, insert parentheses to make it true.**  **1. 4 × (5 + 6) = 44 false**  **2. (24 – 4) × 2 = 40 false**  **3. 25 ÷ 5 + 6 × 3 = 23 true**  **4. 14 – 22 ÷ 2 = 12 true** | | |
| **Assessment/Homework** | **Glencoe Practice Skills Lesson 1-3**  **Holt McDougal Lesson 1-1 Practice A, B, or C** | | |
| **Extending/Refining** | **Extending: Holt McDougal Lesson 1-1 Challenge**  [**challenge.doc**](file:///F:\challenge.doc)  **Refining: Holt McDougal Lesson 1-1 Power Presentation (Slide 24)**  **1. Simplify the expression 36 + 63 ÷ 9.**  **A. 11**  **B. 36**  **C. 27**  **D. 43** | | |